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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,275	05/16/2002	Masahiro Serizawa	G0126.0213	3300

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EXAMINER	
HE, JIALONG	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
11/08/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/980,275	SERIZAWA ET AL.	
	Examiner	Art Unit	
	JIALONG HE	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44,46-67 and 69-88* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,16,22,28,34,51,57,74,79 and 84* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2-15,17-21,23-27,29-33,35-50,52-56,58-67,69-73,75-78,80-83 and 85-88.

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/09/2010 has been entered.

Response to Arguments

2. Applicant's arguments filed on 08/09/2010 regarding the amended independent claims 1, 34 and 57 have been considered but are moot in view of the new grounds of rejection necessitated by the amendments. The Background section of instant application is relied upon for teaching added new features.

The Examiner further notes that the applicant does not point out where the original disclosure supports the added limitation. By carefully looking at the specification, it appears, the new limitation in the amended independent claims 1, 34 and 57 is based on description in specification **page 18** ("*where nothing is transmitted, the filter coefficients send immediately before the frame are used*") and **page 21** ("*the*

encoded signal is not transmitted, the filter coefficients of the previous frame is repeatedly used").

However, these disclosed features are similar to that disclosed in the background section (**Spec. page 3,** "*When the feature parameters are not transmitted, the output speech signal is decoded by repeatedly using the past transmitted feature parameters*"**; page 6,** *"when no encoded signal is transmitted, the RMS of the previous frame is used in the equation"*).

Examiner's Note

3. As a general comment, the Examiner notes that the specification of instant application described some problems in the conventional decoding system in the background section (**Spec. page 8**). The specification also described some possible solutions to the problems of the conventional decoding system (**Spec. pages 16-17**). However, the claims do not recite these disclosed features.

Drawings

4. The disclosure is objected to because of the following informalities:

Figures 8 - 10 should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated (**See specification, background art section. The applicants refer to the fig. 8-10 as "conventional encoding device", "conventional decoding device"**). See MPEP § 608.02(g). Corrected drawings in compliance with

37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 34, 51, 79, 57 and 84 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention.

Claims 34, 51 and 79 are directed to a method of decoding speech signals.

The Federal Circuit (In re Bilski, 88 USPQ2d 1385 (Fed. Cir. 2008)), relying upon Supreme Court precedent (Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v. Deener, 94 U.S. 780, 787-88 (1876)), has indicated that a statutory "process" under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the "machine or transformation test", whereby the recitation of a particular machine or

transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See Benson, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See Flook, 437 U.S. at 590"). While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform an article nor are positively tied to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

For example, claim 34 recites steps of detecting, smoothing and decoding speech parameters. These steps are simply changing a set of numbers. There is no physical transformation. In addition, all steps could be done manually (or mentally) without using a particular machine (**e.g., a speech signal could be represented as an equation S(n), steps of recited in claim 34, such as detecting, smoothing and decoding speech signal, could be done manually using a piece of paper and pen**).

Based upon consideration of all of the relevant factors with respect to the claim as a whole, claims 34, 51 and 79 held to claim an abstract idea, and is therefore rejected as ineligible subject matter under 35 U.S.C. § 101. The rationale for this finding is explained below: the claimed process is directed to smoothing parameters and decoding speech signal using the smoothed parameters which is a disembodied abstract concept in the form of an execution of a mathematical algorithm and is therefore not patent eligible.

Claims 57 and 84 are directed to computer readable storage medium. However, the specification only gives an example but is not limited to floppy disk (**specification, page 28, at the top**). According to the policy of the Office, the claims are given the broadest reasonable interpretation. The full scope of the claimed "computer readable storage medium" covers both transitory and non-transitory media. Transitory media includes signals which are non-statutory (In Re Nuijten, Fed. Cir. 2007), and therefore the claim as a whole is non-statutory. The examiner suggests adding the modifier "non-transitory" to the claimed medium.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

8. **Claims 1, 22, 28, 34, 51, 57, 74, 79, and 84** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayata *(EP 0751490A2)* in view of Saikaly et al *(U.S. Patent: 5,893,056)* and further in view of Applicant's Admitted Prior Art (Spec, pages 1-8, in the section of Background Art, hereinafter referred to as AAPA).

With respect to **Claim 1**, Hayata discloses:

A voice/voice-less detecting circuit for detecting if said speech signals are classified as a voice period or a voice-less period *(determination unit for discerning between speech and non-speech states, Col. 4, Line 54- Col. 5, Line 20)*; and

A voice-less decoding circuit for intermittently receiving said feature parameter for spectral envelope characteristics *(discontinuous transmission, Col. 1, Lines 5-10)* to decode a current frame of the speech signals in said voice-less period *(non-voice decoder, Col. 4, Line 54-Col. 5, Line 20)*, the voice-less decoding circuit performing said decoding by smoothing said feature parameter for spectral envelope characteristics *(Col. 5, Lines 21-54; and Col. 8, Lines 21-55)*, and synthesizing said speech signals of said current frame based on said smoothed feature parameter for spectral envelope characteristics *(synthesizing a smoothed background noise portion, Col. 7, Lines 39-58)*.

Although Hayata teaches a similar non-voice decoder to the claimed invention that utilizes smoothing, Hayata does not explicitly teach smoothing over a plurality of preceding frames or the common use of gain in generating a speech output. Saikaly, however, recites that in the absence of speech or a non-speech period smoothing is performing by averaging over a number of previous frames *(Col. 3, Lines 44-58; and Col. 4, Lines 42-56)* and notes gain factors common to speech signal coding/reconstruction *(Col. 1, Lines 30-32)*.

Hayata and Saikaly are analogous art because they are from a similar field of endeavor in non-speech signal processing. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Hayata with the averaging of previous frames taught by Saikaly in order to provide more natural and continuous sounding background noise *(Saikaly, Col. 3, Lines 1-4)*.

Hayata and Saikaly does not explicitly disclose but AAPA disclose when no feature parameter for spectral envelope characteristics is received in said current frame, the smoothing is

performed using said feature parameter for spectral envelope characteristics received before the current frame (**Spec. Background art, page 3, "When the feature parameters are not transmitted, the output speech signal is decoded by repeatedly using the past transmitted feature parameters"; page 6, "when no encoded signal is transmitted, the RMS of the previous frame is used in the equation 1". Equation 1 represents smoothing for coding parameters**).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Hayata and Saikaly teaching with AAPA teaching to uses parameters from previous frame if no parameters are received for current frame. One having ordinary skill in the art would have been motivated to make such a modification so that transmission error could be concealed and sound quality could be improved.

With respect to **Claim 22**, Hayata discloses a representation of a spectrum envelope *(Col. 5, Lines 21-37)*, while Saikaly discloses the gain parameter as applied to claim 1.

With respect to **Claim 28**, Hayata further discloses:

Speech decoding device being included in a speech coding/decoding device with a coding device which determines whether the input signal is in a voice period or in a voice-less period for each frame and encodes the feature parameters of the input signals to output *(decoder included in a speech encoding/decoding communication system, wherein an encoder detects speech//non-speech and encodes an input speech signal, Col. 1, Lines 5-49)*.

Apparatus claim 1 and method **Claim 34** are related as apparatus and the method of using same, with each claimed element's function corresponding to the claimed method step. Accordingly claim 34 is similarly rejected under the same rationale as applied above with respect to apparatus claim 1.

Claim 51 contains subject matter similar in scope to Claim 22, and thus, is rejected under similar rationale.

Claim 57 contains subject matter similar in scope to Claim 34, and thus, is rejected under similar rationale. Also, Saikaly discloses speech processing implementation as a program stored on a computer readable medium and executed by a computer processor *(Col. 3, Lines 33-43)*.

With respect to **Claims 74, 79, and 84**, Hayata further discloses:

Smoothing in a subsequent period is performed even when a new feature parameter is not received *(smoothing over time as voice inactivity continues, Col. 7, Line 59- Col. 8, Line 4; and Col. 9, Lines 25-35)*.

9. **Claims 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayata in view of Saikaly et al *(U.S. Patent: 5,893,056)* and further in view of Jarvinen et al *(U.S. Patent: 5,960,389)*.

With respect to **Claims 16**, Hayata in view of Saikaly discloses the background noise decoder as applied to Claim 1. Hayata in view of Saikaly does not specifically suggest that when a length of a voice period immediately before a first voice-less period is shorter than a predetermined length, a value of a feature parameter which is finally transmitted in a second voice-less period immediately before the voice period is used as an initial value of smoothing.

Jarvinen, however recites utilizing a previous noise parameter for smoothing upon the occurrence of a short speech burst *(Col. 21, Lines 16-35; Col. 15, Lines 19-46; and Col. 2, Lines 28-43)*.

Hayata, Saikaly, and Jarvinen are analogous art because they are from a similar field of endeavor in non-speech signal processing. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the teachings of Hayata in view of Saikaly with the concept of addressing a short speech burst taught by Jarvinen in order to prevent a speech burst from being misinterpreted as a background noise spike *(Jarvinen, Col. 14, Line 60-Col. 15, Line 3)*.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Lagerqvist; Tomas et al (US 5737695 A) : Method and apparatus for controlling the use of discontinuous transmission in a cellular telephone.

- Stegmann; Joachi (US 5781881 A) : Variable-subframe-length speech-coding classes derived from wavelet-transform parameters.

- Hayata; Toshihir (US 5787388 A) : Frame-count-dependent smoothing filter for reducing abrupt decoder background noise variation during speech pauses in VOX.

- Massaloux; Dominiqu (US 5812965 A) : Process and device for creating comfort noise in a digital speech transmission system.

- Shepard; Steve (US 5943347 A) : Apparatus and method for error concealment in an audio stream.

- Jarvinen; Kari et al (US 5960389 A) : Methods for generating comfort noise during discontinuous transmission.

- Alanara; Seppo et al (US 6269331 B1) : Transmission of comfort noise parameters during discontinuous transmission.

- Su; Huan-Y (US 6510409 B1) : Intelligent discontinuous transmission and comfort noise generation scheme for pulse code modulation speech coders.

- Cooke; Kenneth E (US 6597961 B1) : System and method for concealing errors in an audio transmission.

- Rotola-Pukkila; Jani et al (US 6662155 B2) : Method and system for comfort noise generation in speech communication.

- Beaucoup; Franc (US 6711537 B1) : Comfort noise generation for open discontinuous transmission systems.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JIALONG HE whose telephone number is (571) 270-5359. The examiner can normally be reached on Monday-Thursday, 7:00AM-4:30PM, ALT. Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Wozniak can be reached on (571)272-7632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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